

REMARKS/DISCUSSION OF ISSUES

Claims 1 and 2 are pending in the application.

Claims 1 and 2 are rejected under 35 USC 103 (a) as being unpatentable over Hardies (US 4,015,165) in view of Yamada et al. (US 4,173,518).

Hardies teaches a lamp having molybdenum electrodes with a corrosion-resistant covering chosen from nickel, manganese nickel, nickel-plated brass, nickel-plated iron, chromium-plated iron, electroplated iron, platinum, gold, chromium, iridium and ruthenium (col. 1, lines 55-60). These materials are all either metals, metal alloys, or composite metallic structures.

In contrast to the teachings of the reference that the protective covering for the molybdenum electrodes must be a metal sleeve, Applicant provides a protective layer of either titanium nitride or chromium carbide, neither of which materials is a metal or metal alloy or composite metal, but rather are ceramic compounds.

As pointed out in Applicant's prior response, ceramic materials would not be considered by the skilled artisan to be an obvious substitute for metals in any application, and particularly in an application where good electrical connection is required.

Moreover, it would not be obvious to select only titanium nitride and chromium carbide from among the universe of available ceramic materials, or even from among the many different nitrides and carbides which are known. Such choice was not arbitrary, but was made in order to obtain optimum properties for the particular application, including ability to form a highly corrosion-resistant coating on molybdenum by CVD, ability to form good welds to the coated electrodes, and

ability to form good electrical contacts with the coated electrodes.

By logical extension, it would not be obvious to provide such materials in the claimed thicknesses, in order to provide sufficient corrosion protection, while still enabling the achievement of good welds and good electrical contacts.

The Examiner acknowledges that Hardies does not teach the group of materials titanium nitride and chromium carbide, but cites Yamada et al., to show a coating formed of such materials.

Yamada et al. teach electrodes for aluminum reduction cells, made of or coated with (at least in the portion of the electrodes which come in contact with a molten salt bath) a composition which has at least 50% by weight of 'electronic conductive' oxide ceramics. The composition may also contain up to 50% by weight of other oxides, carbides, nitrides, borides and silicides, beyond which the conductivity, bath resistance and oxidation resistance are deteriorated. Preferred additives include a long list of oxides of various types, as well as titanium nitride; titanium, zirconium and lanthanum borides; and tungsten silicide.

Yamada et al. thus teach that titanium nitride is one of many materials which is preferred as an additive to a conductive oxide composition for use as an electrode in an aluminum reduction process. They do not state that carbides are preferred additives, and do not even mention chromium carbide in its long laundry list of possible additives.

Yamada et al. thus would not suggest the use of titanium nitride and chromium carbide as coating materials per se, and certainly not as coating materials for lamp electrodes.

Accordingly, it is urged that this rejection of claims 1 and 2 under 35 USC 103(a) is in error, and should be withdrawn.

Claims 1 and 2 are also rejected under 35 USC 103(a) over Hardies in view of Yializis.

The Examiner acknowledges that Hardies fails to disclose the use of titanium nitride and chromium carbide as coating materials for a lamp electrode, and also fails to disclose the coating thickness of 2-3 um. However, Yializis is cited to cure these deficiencies.

Yializis teaches a polymer film capacitor made of a wound metallized polymer film. Inorganic layers may also be used to produce hybrid layers with different end uses. A long list of possible inorganic materials is provided, including metals and ceramics. Titanium nitride is mentioned specifically, but chromium carbide is not. Example of transparent ceramic-coated barrier films for packaging are given, in which various oxides, nitrides (including titanium nitride) and oxy-nitrides are employed at thicknesses in the range of 5-100 um. See col. 21, lines 31-37.

Thus, similarly to Yamada et al., Yializis teaches that titanium nitride is one of many materials which may be used for a very different purpose, in this case, as a barrier layer in a polymer film hybrid. He does not mention chromium carbide in his laundry list of possible barrier materials, and does not even state that carbides may be used for this purpose.

Yializis thus would not suggest the use of titanium nitride and chromium carbide as coating materials for the very different purpose of coating lamp electrodes.

With respect to claim 2, Yializis teaches a coating thickness range larger than that claimed by Applicant, and thus actually teaches away from Applicant's claimed invention.

Accordingly, it is urged that this rejection of claims 1 and 2 under 35 USC 103(a) is also in error, and should be withdrawn.

In view of the foregoing, Applicant respectfully requests that the Examiner withdraw the rejection of record, allow all the pending claims, and find the application to be in condition for allowance.

Respectfully submitted,



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